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MEDICINE AND DISEASE IN PHILIPPINES.

BY DAVID J. DOHERTY, M.D.

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This subject should be treated by some one who has personal information, but our army and navy medical officers have doubtless been too much occupied by their duties to indulge in study or composition. The medical department at Washington has as yet issued no reports, while standard works on geographic pathology give but little attention to the Philippines, and original ones by Filipino or Spanish authors are not accessible to many American readers. Yet the Philippine Islands, with their teeming millions of inhabitants, are on our hands and we must face our duty toward them. All this is my apology for presenting this paper, which contains in condensed and systematized shape all the data that I have gathered from a number of authorities, whose titles are given in the bibliographic index at the end of the article.

Modern medicine bases its classification of diseases on etiology; and with the aid of bacteriology is rapidly studying and cataloguing the etiologic factors of disease. Still we have not yet advanced far enough to dispense with the old views as to the influence, causal or conditional, of physical environment, such as climate, temperature, food, etc. These factors must still remain, if not as causes, at least as conditions. They may be the *tertium quid*, the copula between the microbe and its victim, increasing or inhibiting its potency or virulence, and hence it is necessary to mention briefly the climatic conditions of the islands.

The Philippine archipelago possesses "a singular variety of climate." (*Encyclopedia Britannica*.) This is due to its extent, from the fourth to the nineteenth degree of north latitude; to the division of its surface into innumerable islands; to its many channels and currents, which carry the winds of the Pacific; to its chains of mountains, their altitude and direction; to the fact that the warm equatorial current tilts full against it and sweeps northward along by it; and, chiefly, to its location in a direct line between the varying atmospheric pressures of the table-lands of Asia and Australia. This condition explains the contradictory statements of travelers as to its climate, the paradox that the portion nearer the equator is more healthful than the northern islands, and the fact that it is an exception to the rule of double alternating wet and dry seasons which characterize equatorial lands. Its location exposes it to the sweep of the monsoon, which blows during the northern winter from the high-pressure atmosphere of Asia to the low-pressure atmosphere of Australia, and in a reverse direction during the northern summer. The result is a general division of the year into two portions: that in which the northeast monsoon blows, or from about October till February; and that in which the southwest monsoon prevails, from June till October, with an interval of calm. The first period is cool and dry, the interval very hot, and the second period wet. As may be inferred, no absolute statement as to the date of occurrence and the duration of these periods can be made, for they vary in different islands.

The temperature is high and constant, its mean ranging, according to latitude from 72 to 81 F. in the cold season; 88 to 82 F. in the hot season; and 87 to 83 F. in the wet. It must not, however, be inferred that one can not feel cold there, for especially at night, even at the sea-level. I have noted that travelers sometimes speak of "an overcoat being agreeable," of "blankets being desirable," of "being numb with the cold," etc. The humidity is rather uniform. The rainfall at Manila in inches averages 8.6 in the cold season, 10.4 in the hot, and 36 in the wet. At Sulu, the range is 15, 33, and 25 inches, respectively, in the same seasons. The barometric excursion is between 755 and 762 mm. Atmos-

pheric electricity is considerable, almost every night showing flashes, and during the wet season thunderstorms are of almost daily occurrence. At the change of the monsoons, which takes place near the equinoxes, and especially at the autumnal, violent winds occur, sometimes causing typhoons or cyclones.

A knowledge of these meteorologic data is necessary in order to study the nature and etiology of the diseases, which exist in the archipelago, and to determine rules of public hygiene and private health. The high temperature and the humidity induce an excessive action of the skin. This constant diaphoresis is the cause or occasion of some of the many skin diseases that prevail there. Continued hyperactivity of a tissue leads eventually to atrophy or paralysis, and the way is opened to other skin diseases. Constant thirst is another sequela, and this leads, more by its too generous gratification than by its neglect, to anorexia and various forms of dyspepsia. Diminished urinary secretion is another which leads on its own cortege of ailments. Muscular lassitude and weakness, inactivity and curtailed respiratory action are also effects and in turn become causes. Any lesion in the delicate physiologic mechanism impairs the function of other parts, and the door is opened to all the endemic, epidemic and sporadic diseases, which make up the nosology of the Philippines.

It must not be inferred that the climate of the Philippines is deadly. On the contrary, it is the most healthful of any in the tropics. But the physical conditions which determine the growth and spread of germs and which affect the susceptibility of the human race prevail more in the tropics than elsewhere. Hence, it follows that neither the individual nor the race inhabiting the tropics can be as healthy or as vigorous as those in the temperate or sub-arctic zones. It also follows that, notwithstanding the help which Nature gives him by its monsoons and typhoons, man himself must obey every rule of hygiene and every precaution of experience in order to hold his own in the struggle for existence.

My review of the diseases which occur in the Philippines is drawn principally from Barcones' '*Estudia para una Nosologia Filipina*.' Dr. Barcones was a surgeon of the Spanish navy, who spent two years in the hos-

pitals at Cavite, Zamboanga, Joló and Manila. In scientific insight, common sense and clearness, his work is fully equal to any similar book in French, German or English. I have also read Cavada's "Historia Estadística," a huge accumulation of more or less reliable data arranged by provinces and gathered from reports of Spanish officials. These data, when tabulated, enable us to judge the relative frequency of diseases, though the popular and symptomatic character of the diagnosis robs them of scientific value.

The first place in frequency is occupied by fevers: the malarial form predominating, the others being typhoid, malignant, putrid and catarrhal. Next in order come dysentery, phthisis and other pulmonary affections, skin diseases, colics, convulsions, leprosy, smallpox and buboes. The table also contains the names of cholera, rheumatism, inflammation of the eyes, dropsy, measles, erysipelas, paralysis and worms. Finally are mentioned two diseases by their native names, *soroc-soroc* and *colo-colo*. The former I have not been able to identify; but the latter is a condition of atrophy of the male genital organs, due to early marriage and excessive sexualism common in hot countries.

Barcones divides his work into three parts, treating respectively of endemic, epidemic and sporadic diseases.

ENDEMIC DISEASES.

Those due to telluric infection.—1. The most important in this class is the chronic diarrhea of hot climates. It is not dysentery nor bilious, mucous or choleriform diarrhea. It is a specific disease probably due to a specific germ and characterized by frequent stools without tenesmus, not bloody, but thin, profuse and grayish or whitish-yellow in color. The points of differential diagnosis are: absence of fever, no tenesmus, profuseness of stools, and obstinacy to treatment. The patients are or become anemic, the tongue becomes aphthous and ulcerated, hemorrhagic maculæ form in the mucosa, grit-like shreds of epithelium are found in the stools, which become more frequent and profuse, pustules form in the skin, which is sensitive to cold, the extremities become paralyzed, the liver atrophies, the intellect is numb and complete marasmus closes the scene. 2. Acute suppura-

tive hepatitis is also frequent and seems to be due to a specific infection.

Those due to paludal infection.—1. Malaria, the dominant forms being double quotidian and double tertian. All races are subject to this, and new arrivals are particularly amenable. It prevails throughout the entire archipelago, but is worse on Balabac, Basilan and the subarchipelago of Sulu. 2. Continuous fevers, which may be benign, grave or pernicious. The first has no cold stage, but a burning skin and intense headache, perhaps also bilious vomiting and jaundice. It runs three to ten days and generally leaves gastric trouble as a sequela. The grave form is two-fold: one, resembling severe typhoid, but with intermissions of fever, lasting six to seven days and terminating by a crisis; the other, with a similar range of fever, but with bilious vomiting, icterus, mucous ecchymosis and cerebral derangement. The pernicious fever may be comatose, apoplectic, deliriant, epileptiform, syncopal, algid or cholericform. It occurs chiefly in Basilan, Balabac and Joló. All these types of pernicious fever have similar characteristics in onset, season, fever, condition of abdominal viscera and malarial protozoa in the blood. A low temperature, especially in the young, is serious. 3. Larvate paludism—neuralgia, urticaria, etc.—occurs in anemic women and yields to quinin. 4. Paludal cachexia, general among the natives and characterized by anemia, pale or muddy skin and mucosa, small and slow pulse, cardiac weakness and soufflé, and diminution of red blood-corpuscles, besides enlarged liver and spleen. The points for differential diagnosis of malarial infection are splenic enlargement, protozoa in the blood, and action of quinin. Barcones says that, in the Philippines, all pernicious fevers should be suspected to be malarial and the patient should be saturated with quinin as quickly as possible. 5. Manila fever. A special type of pernicious fever occurs in Manila during the hot months of April and May, and sometimes becomes epidemic. Dr. Barcones found it nowhere else, and he was not able to learn from other doctors of its occurrence elsewhere. He thinks it is malarial in character, but other physicians class it as distinctly specific. Malaria is a disease of hot and moist months, while this occurs in the hot and

dry season. The onset is insidious, without initial chill and with but slight symptoms, perhaps a little vertigo or anorexia. There is hardly any lassitude, the pulse range is normal—60 to 90—respiration easy, no thirst, no increase of spleen or liver, tongue moist and clean, urine limpid; in fact, the victim feels almost as well as usual. *But the thermometer shows a rising temperature*, and when it reaches the point of danger, say 42 C., a rush of symptoms overwhelms the patient. The prognosis is so grave that a physician, if he can be called in time, must not delay about theories. He faces a condition and a dying man, not a theory. If the patient is robust, then blood-letting is indicated; if not, baths, quinin, alcohol, bromids, caffein, anything and everything, in the practically hopeless battle. It would seem advisable to try infusion of normal salt solution with or without the blood-letting.

Microbe infection.—1. Typhoid is very frequent, especially among the dense population of Manila. The prognosis is always grave, on account of the debilitating conditions of life. 2. Dysentery is always endemic and sometimes epidemic, contagion being through the stools. It is due to a microbe which produces ulcers in the large bowel. The stools may be as numerous as one hundred in twenty-four hours; they are often bloody and mucous, and always attended by tenesmus and severe griping. There is intense thirst, goose-flesh, variable pulse and excruciating pain, followed by adynamia, somnolence, coldness and death about the twentieth day. This must not be confounded with the chronic diarrhea of hot climates that afflicts foreigners who are addicted to alcohol and high living. It follows slight, acute attacks often repeated, and is characterized by serous stools, absence of tenesmus, a feeling of weight in the rectum, absence of fever and of anorexia, and is followed by gradual weakness and wasting. 3. Beri-beri is ascribed by MacLean to scurvy, but Barcones considers it of microbic origin. The name is derived from a Singhalese word meaning weakness, and the Tagalos call it *Mausas*. It is found in both hemispheres between latitudes 45 degrees N. and 35 S., and during both the wet and dry seasons, but more frequently in the former. It occurs chiefly among rice-eating people, and by some authors is

ascribed to damaged rice. The mortality varies in different years and localities from 10 to 70 per cent. It runs a rapid course and is characterized by serous anasarca without albuminuria, but with torpidity and weakness of the lower limbs. The blood is altered as in anemia or scurvy. Three forms are found, the marasmic, dropsical, and polysarcic. The first is marked by a rapid invasion of symptoms, viz., difficulty of locomotion, diffused anesthesia, atrophy of skin and muscles, periodic attacks of palpitation and depressed circulation. The anesthesia and atrophy gradually extend to the trunk, and general paralysis slowly causes death. The dropsical form is the usual one in the Philippines. Its course is more rapid because of effusion into the pericardium and pleura. The polysarcic form is marked, in addition, by an extreme obesity and a terrible aspect of the countenance. All the forms have fever. Sometimes the disease proves abortive, but convalescence is slow and relapses are frequent. The patient remains anorexic and has a peculiar strutting walk like a rooster. Often it is acute and fulminant, the rush of symptoms being overwhelming and death ensuing in from twenty-four to forty-eight hours. The points for diagnosis are: the irregularities of heart and circulation, the absence of albuminuria, local anesthesia, the mode of walking and alternating edemas of the extremities. 4. Erysipelas is frequent among the natives, and in spite of their dark skin is easily recognized.

Bradytrophic arthritism.—1. Acute articular rheumatism is frequent, especially on the coasts. Like typhoid and pneumonia, it diminishes after the typhoons. The chronic form is also common, especially in females. 2. Gout, both acute and chronic, is found among foreigners and well-to-do natives who indulge excessively in eating and drinking, and lead idle, sedentary lives. 3. Obesity is prevalent among natives and Europeans, both sexes and children, and is due to the food being largely farinaceous and sweet, and to the inactive life imposed by the climate. 4. Phagedenic ulcers are numerous and are called *llagas de Cristo*—wounds of Christ—by the natives. The tissues around the sore are atonic and anesthetic, and undergo progressive molecular destruction. They resist healing measures and not infrequently

require amputation. A specific microbe is probable, but has not yet been discovered. Concurring causes are the abundance of insects which cause lesions, the excessive perspiration which causes maceration, and the racial anemia and weakness of constitution.

Dyscrasias.—1. Anemia is the most wide-spread pathologic condition in the country. It not only accompanies all diseases, and attends convalescence, but it is often primary. Primary anemia is not a malarial cachexia, because not attended by enlarged spleen or protozoa. It seems to be, like the febrile attacks and the diarrheas, a part of the process of acclimatization, and hence its special victims are foreigners. Barcones thinks that the climate—heat and moisture—by diminishing the respiratory field, impairs hematosiis, debilitates the digestive functions and disturbs nutrition. 2. Leukemia is frequent among those who suffer from the prevalent forms of dermatosis and furunculosis. It is also a transitory symptom in all the microbic diseases, including tuberculosis and the native dysentery. The white blood-corpuscles increase in number, and the adenoid tissue proliferates even in organs normally possessing little or none, so that lymph adenomata are formed in the liver, kidneys and serous surfaces. 3. Diabetes is rather rare, but does occur. 4. Rachitis is very common among the natives and the offspring of foreigners. Barcones says: "All the native races are excessively rachitic. It seems as if nature, which is otherwise so exuberant in its manifestations, had attempted in this land to belittle the human race by making men little, weak and rachitic both physically and morally."

EPIDEMIC DISEASES.

1. As to cholera, the pandemics of 1819 and 1865 involved the Philippine archipelago with the rest of the world, but it escaped the epidemics of 1830, 1848, and 1854. In 1882, cholera destroyed 25 per cent. of the population of Zamboanga in one month, and decimated that of Manila. It seems that it has not been extirpated since, for cases occur every hot season, and in 1884 and 1889 there were frequent outbreaks. 2. Smallpox exists the same as elsewhere, and the hemorrhagic or black pox is the most frequent. Vaccination is largely practiced

by the natives, but immunity is lost by the failure of the adults to be re-vaccinated. 3. Varicella is common, sometimes assuming a pemphigoid form. It is trifling in children, but may be serious in adults. Travelers, who speak of seeing children with smallpox, in their mothers' arms, on the street-cars in Manila very likely saw cases of varicella. 4. Scarlatina, measles and roseola occur. 5. Diphtheria is abundant in all the islands, often malignant, and sometimes epidemic in the dense city populations. 6. La grippe invaded the Philippines in 1889-90, in its tour around the world, and reappeared in several following years. Barcones saw many cases in the hospital of Joló in January and February, 1894. Convalescence was shorter and more complete here than in Europe. 7. Dengue, being native in Indo-China, easily passes over to the archipelago. It occurs usually at the change of the monsoons. 8. As to scurvy, Barcones had not a few cases among sailors who had been on long voyages. An outbreak occurred in the Spanish army on Mindanao in 1890. It is frequently found among the native boating population and in the prisons.

SPORADIC DISEASES.

Skin diseases.—1. Lichen tropicus, rosy papules becoming vesicles and attended by severe pruritis, besets the newly arrived, and is probably due to hyperidrosis. 2. Acarus itch occurs not only among the poor and unclean, but also among the better classes. Among the Moros, it is so severe that the skin becomes even corrugated. 3. Phthiriasis or morbus pedicularis is very prevalent. 4. Sycosis is found often among foreigners, but the natives, having little or no beard, do not suffer from it. 5. Pellagra has been common among the agricultural population since the introduction of maize. 6. Herpes occurs frequently and in great variety. 7. Leprosy exists, especially in Mindanao, Paragua and Joló. Barcones studied it in the Leper Hospital at Manila, where he met the true tuberculous form. 8. Elephantiasis was found in the Leper Hospital.

Diseases of the intestinal tract.—1. Stomatitis, muguet, etc., are plentiful among the natives and are due to lack of attention to the mouth, to the abuse of tobacco, and to the constant chewing of bullo—a mix-

ture of betel leaves, bonga fruit and lime. Bordier, in his "Geographie Medicale," claims that bullo is an astringent and intestinal disinfectant and a preventive of tropical diarrheas. 2. All forms of gastritis and intestinal inflammations occur with extreme frequency and are difficult to treat because the milk-supply is inadequate and poor in quality. 3. Dysentery is always present, either sporadic, endemic or epidemic. 4. Acute congestions of the liver are very common and are the chief cause of mortality among foreigners. 5. Cholelithiasis is frequent, especially among women and the sedentary classes. 6. All forms of intestinal parasites are found, due largely to the use of water from sluggish streams. This class of ailments is produced by sedentary life, abuse of the bath, overeating and indulgence in alcohol.

Diseases of the respiratory system.—1. Acute coryza occurs among foreigners, and is attributed by Barcones to the practice of removing the hat in the shade after exposure to the sun's rays, in order to wipe off the copious perspiration. 2. Ozena was found only among the Chinese and was ascribed to the fact that their wide and presenting nares are easily accessible to infecting germs. 3. Epistaxis occurs often among the soldiers after exposure to the sun. It is also an accompaniment of liver diseases, eruptive fevers, malaria and anemia. 4. Catarrhal anginas are common, especially among the women, who are wont to wear but scant covering on the neck and upper thorax. 5. Laryngitis in all forms is produced by the excessive use of tobacco. The tuberculous form is as prevalent as in Europe, and is largely found among the young women who work in the tobacco factories. 6. Acute bronchitis is frequent during the rainy months and at the change of the monsoons, but its duration is shorter than in the temperate zones. The chronic form afflicts almost all adults, both native and acclimatized. It is due to tobacco and alcohol, and to the rheumatic and arthritic diatheses. 7. Asthma is common. 8. In spite of the comparatively even temperature, pneumonia occurs as freely as elsewhere, not only in the cold season, but also in the hot months. 9. Phthisis pulmonum is as prevalent in the Philippines as in any country of the globe. Acute miliary tubercu-

losis occurs with unusual frequency among the young, and especially among the newly-arrived soldiers. 10. Acute pleurisy was found very often.

Diseases of the circulatory system.—Barcones met all forms: endocarditis, myocarditis, functional hypertrophy, etc., the last-named being caused by the abuse of liquor, tobacco, tea and coffee. He saw no aneurysm. Exophthalmic goiter is found chiefly in the negro tribes, and especially among the dysmenorrhœic and hysterical women.

Diseases of urinary and genital apparatus.—Acute and chronic nephritis occur as elsewhere. Renal lithiasis is not rare in Manila, and Barcones attributes it to the character of the drinking water. Cystitis is frequent and is due to the abuse of the bath. Gonorrhea and syphilis are wide-spread, the latter being generally violent in character and attended by a rapid march of the stages. Affections of the testicle and scrotum are the same as elsewhere, except that the natives generally suffer from atrophy of the testicle and even of the penis, due to early use and subsequent abuse of the sexual relation. This condition they call *colo-colo*. The women are usually anemic and chlorotic. The genital functions develop early, and the duties of marriage are assumed before puberty is well established, and before the organs are ready for the task of maternity. The menses are more profuse and closer together than in colder climates. Women suffer all the ailments that their sisters elsewhere endure.

Diseases of the nervous system.—Among these, Barcones saw cerebral congestions, gummata, meningeal inflammations, myelitis, locomotor ataxia, progressive muscular atrophy, and infantile paralysis, but no case of paralysis agitans. Epilepsy is frequent among all the races. Hysteria occurs among the natives, both men and women, and sometimes spreads by imitation. They call it *nagalit*, which means "hot-head" or getting crazy. Chorea also sometimes spreads by imitation. He saw no case of tetanus, though he treated many wounds, especially of the feet, these being frequent, on account of the habit of going barefooted. All forms of neuralgia and facial and other kinds of paralysis are met as often here as in other regions. Gangrene of the extremities

is peculiar to this country, especially among the Chinese and Moros, and in women who have repeated attacks of malaria. It is a local, symmetrical asphyxia.

INTOXICATIONS.

Barcones is very severe in his condemnation of "the inhuman spirit of speculation," which introduced alcohol and opium to the natives. "The evil has borne its fruit and the inhabitants of these remote lands have adopted our vices, adding them to those possessed from time immemorial, and producing the physical and moral impoverishment of a race already of itself weak and miserable." He declares it is no exaggeration to say that the use of alcohol in hot countries is the constant promoter of almost all the diseases known in them. The clinician and the hygienist, as well as the moralist, must recognize it as the fount and origin of diseases, both acute and chronic, of tissue degeneration and cirrhosis, of insanity and of crime. The practice of drinking a "bracer" during the morning fast was copied by the natives from the Spaniards, and is now almost universal. The latter take their *aguardiente*, and the former their *tuba*—wine of coca. The custom is even more injurious than the use of alcohol at meals.

The opium intoxication was introduced by the Chinese, and is largely practiced by them. Their dens were licensed by the Spanish government.

Tobacco intoxication or nicotinism, which is a frightful abuse found among the Filipino men and women, is the cause of laryngeal, bronchial and gastric troubles.

This summary of Philippine diseases is the authoritative report of a practical, scientific man, and it enables us to correct the errors of other writers. For example, the "Dictionnaire Encyclopedique"—which has an excellent article on the Philippines—says that primary hepatitis is rare, that typhoid fever is exceptional, that dengue does not occur, and that tetanus is quite common. Davidson says that pneumonia, pleurisy, influenza and pertussis are rare, and that he nowhere finds mention of scarlet fever. On the other hand, I find, in Barcones, no mention of sunstroke. Stevens, a layman, who spent two years in Manila, says that it is uncommon. Nor does Barcones mention the bubonic plague, which

has appeared since his book was written, and which quite recently—according to press reports—has gained a foothold in Luzon. Cavada speaks of the prevalence of buboes and of their being hereditary in families, but he no doubt refers to the enlarged glands of scrofulosis, and not to a rapid, infectious and fatal disease.

Since the bubonic plague must now be included in the nosology of the Philippines, the following statement, excerpted from Manson, is in place. Its bacillus has been identified by Kitasato, and rats and other vermin are recognized as its usual carriers. The incubation period is usually from two to eight, rarely to fifteen days, but in malignant forms it may be only a few hours. The prodromata are depression, anorexia, aching, chilliness, giddiness and sometimes a dull pain in the groins. The onset is rather sudden, with fever, great lassitude, headache, aching and drowsiness. The face is drawn and haggard and the eyes bloodshot. Sometimes after one or two days of invasion, and sometimes suddenly, the temperature rises rapidly, followed by its cortege of symptoms—thirst, weakness, delirium, subsultus, coma, and convulsions. The spleen and liver are enlarged. The urine is scant, and rarely shows more than a trace of albumin. The pulse becomes weak, dicrotic and intermittent. In most cases, usually in twenty-four hours, the characteristic bubo forms in one or both groins, sometimes in the axilla or cervical angle and is occasionally multiple. The buboes go on to suppuration and heal indolently. Convalescence is generally slow. Death usually takes place between the third and fifth day, and the mortality varies with the degree of virulence of the epidemic, from 20 to 95 per cent.

It may be useful to add a word about the time of the year at which the various disorders occur. Foreman says that many deaths take place in the spring from acute indigestion, caused by eating the new rice too plentifully. Stevens says that the cold season is the most healthful, and that the hot, dry months in the lull between the monsoons are the most unhealthful. Cavada states that smallpox occurs in the early months of the year, cholera and gastric disturbances during the southwest, and malaria and catarrhal fevers during the northeast, monsoon. Generally speaking, morbidity is greatest at the

changes of the seasons, and mortality highest in the cold season and at the onset of the rains. Barcones notes that rheumatism, malaria, pneumonia and typhoid diminish after the occurrence of hurricanes, because these storms either destroy or sweep away the germs. Acute gastric fevers and dengue develop at the change of the monsoons. Pneumonia and beri-beri occur in both the wet and dry seasons, but are more frequent in the former. Pernicious fevers and cholera occur in the hot months.

Finally, the important question of treatment remains to be considered. Among the natives, especially in the interior, there are numerous *curanderos*. These men do not constitute a class or caste like the medicine-men of savage tribes, but they are somewhat akin to the barber-surgeons of villages in Continental Europe in which doctors are not located. They use the native plants in all manners; infusions, decoctions, embrocations, powders, etc. In general, we may say of their treatment what can not be said of some of our pharmacopeial drugs, that if it does no good it probably does no harm. As an example, for neuralgias they use *tangan-tangan*, a ricinus plant. Not long since I read a commendation of the castor-oil treatment for obstinate neuralgias, and I have several times since used it with excellent results. The *curanderos* who suck the bites inflicted by venomous reptiles are called *chanas*, and their antidotes *panaod*. Barcones says that their results are often marvelous. The natives also have a custom of applying ligatures around the limbs in beri-beri, in order to prevent the edema from ascending to the trunk. Another singular custom of their women is that of kneading and massaging the abdomen of pregnant women during the two weeks preceding the expected delivery. They say it makes parturition easier and places the child in a better presentation.

Treatment, as practiced by educated Filipino and Spanish physicians is precisely the same as with us. But Barcones emphasizes the necessity of always adding tonic treatment in order to counteract the debilitating influences of the climate. They also realize that the best treatment is prophylactic, and that prophylaxis must be public as well as private. As a matter of historic justice it should be recognized that, whatever the polit-

ical failings of Spain may have been, she should not be charged with neglect of the sanitary and hygienic needs of the Filipino people. This was natural, since medicine exercises a witchery over the minds of its devotees and compels study, investigation and work. The Spaniards could not have been alone obtuse to her charms. We Americans are not familiar with Spanish writings. We know those of the English, the Germans, the French and to some extent the Italians, but it may readily be admitted that Spanish medicine occupies the same high level as that of the other nations.

The archipelago was controlled, as to sanitary matters, by a department of charity and health, which included bureaus of maritime hygiene, baths, medicine and pharmacy, vaccination and hospitals. Manila was divided into fifteen districts, each in charge of a physician and under control of a superior sanitary committee and a central bureau of vaccination.

According to Trübner's "Jahrbuch der Universitäten der Welt" (1898-99), the University of Manila had 404 medical and 51 pharmacal students out of a total of 1144, and for many years, if not for generations, it must have sent forth a supply of physicians. Its teaching staff was complete, and in the list of its professors, I note the name of Dr. Manuel Rogel, professor of hygiene, who is known by his work on "Lepra en Visaya." There must have been some medical journals published in the islands, for I find reference to the *Boletín de Cebu* and the *Cronica de Ciencias Med. de Filipinas*.

Barcones gives a list of ten hospitals and ten infirmaries scattered through the islands, some of which were civil and some military and naval. The most notable are those of St. John of God, in Manila, in charge of the Sisters of Charity; St. Joseph's Asylum for the Insane, located on an island in the Pasig River, and the Leper Hospital of St. Lazarus, in charge of the Franciscan Friars. The origin of the last-named hospital is noteworthy (I quote the story from Foreman): In 1633, the ruler of Japan, being hostile to Spain and resisting the missionaries' attempts to Christianize his people, sent to Manila a shipload of lepers—about 150 in number—with a message that he did not permit Christians in his country, but knowing that the priests pro-

fessed charity for the afflicted, he committed these unfortunates to their care. Instead of adopting a modern "shot-gun" quarantine, the monks accepted the gift and built for the lepers a shelter which has grown to be the richly endowed leper hospital of Manila.

Vaccination was early introduced into her colonies by Spain. In 1803, five years after the procedure was made known, though the country was involved in the turmoil of the Napoleonic wars, she sent an expedition to vaccinate her subjects in all her colonies—a task that occupied three years. There stands in Manila a statue to Charles IV, which bears the inscription "In Gratitude for the Introduction of Vaccination into the Philippine Islands." Jenner himself did not get a statue till 1858, or sixty years after his discovery was announced, and thirty-five years after his death. Since that date the practice of vaccination is widespread in the archipelago, and the Dict. Encycloped. says that the natives are favorably disposed to it. At any rate, according to Cavada, in almost every village there was a public officer styled vaccinator, who was usually not a physician.

Quarantine was enforced as occasion arose. A frequent complaint in Stevens' book is that the mails and shipments were delayed by quarantine. However, the quarantine of 1200 islands, with a tariff inviting smuggling, is not an easy task.

So much for public prophylaxis, which, though essential, should not render unnecessary the far easier individual prophylaxis. The essence of this latter may be expressed in that fine German motto: *Nur mässig*—be moderate! Moderation is the substance of the following advice given by Barcones, Hoess and other physicians who have lived and practiced in the tropics.

Food.—In hot climates digestion is slower and all secretions, except the sudorific, are less than in the temperate zones, hence the visitor to the tropics should leave behind him his former habits of eating and should accustom his digestive tract to the foods of the country, which are largely pleasant fruits. He is tempted to overindulge or to eat as freely as in his former environment, and as a result he is liable to acquire dilatation of the stomach, gastric catarrh, etc. These fruits ripen quickly and decay soon, hence the danger of diarrheas

and other infections. They are acid, and hyperacidity is an obstacle to the absorption of lime and other salts needed by the system.

Exercise.—The heat inclines one to avoid exercise, but the latter is necessary to prevent the system from becoming enervated and the nutrition from being impaired. On the other hand, overexercise in a hot climate is injurious, and he will be a fortunate man who can wisely strike the happy mean.

Baths.—The heat likewise tempts one to overindulge in cold baths, that lead to frequent congestions of the stomach and bowels and afterward to a chronic condition. Baths for cleanliness are necessary; and brief ones, that are not too cold, may be moderately used for cooling the body.

Drinks.—Alcohol—whisky, beer, wine, etc.—is surely poison in the tropics if not elsewhere. I have already given Dr. Barcones' judgment on the subject. Dr. Hoess says: "Nothing is more foolish than the notion of the laity that alcohol is the best preventive of malaria." He bases his judgment on his personal experience. Coffee, tea, milk and water, which Nature provides in those climates, are the drinks which Nature meant man to use.

Sterilization.—Since germs multiply rapidly in hot, moist climates in every organic tissue, all articles of food and drink should be sterilized before being taken into the body, and this is best done by cooking. Fresh fruit with its rind not removed is sterile, but if it has been peeled or has stood long, it may easily become a nest of germs. Finally, Barcones gives the homely advice, to wear flannel belts, not to stay in the fields after sundown and not to sleep on the earth or in low dwellings with the windows open.

Here, if anywhere, the Americans should follow "plain living and high thinking," as well for their own sake as for that of the people toward whom we have now assumed responsibilities. Some foolish Padre—quoted by Worcester—said: "The Filipinos are big children who must be treated as little children." It would be unwise to accept a *bon-mot* as a philosophic aphorism or a political rule. The father who constantly threatens and beats his child to make it be "good" brutalizes both himself and his child, and since in the

name of humanity we fought Spain, let us take care lest by being selfish and unjust we invite Nemesis and become as inconsiderate and cruel as the Spaniard is alleged to have been. It will require deep study, much self-control, great unselfishness and prayer to keep us as a nation pure-minded and honorable. In this spirit I submit this paper as my contribution in the work of learning the needs, and relieving the necessities of our new-found, dark-skinned brothers.

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